

# The Third Joint Seminar at Advanced Nanomaterials Laboratory Between Osaka University and University of Amsterdam

(INSD NanoScience Seminar No. 38)

Supported by International Joint Research Promotion Program,  
R<sup>3</sup> Institute of Newly-Emerging NanoScience Design,  
and Program for Leading Graduate Schools; Interactive Materials Science Cadet

Date: January 26 (Thu), 2023, 14:30-16:45 (Osaka) <6:30-8:45 (Amsterdam)>

Place: Seminar room @2F, Zairyo-Kaihatsu-Busse-Kinenkan (#R4)  
<https://www.eng.osaka-u.ac.jp/en/access/>

URL: zoom meeting

<https://us06web.zoom.us/j/86241631266?pwd=YmlyQU8vbldKNGJXTTFNZ2hGUTcxdz09>

Meeting ID: 862 4163 1266

Passcode: 277708

Program:

14:30-15:15 Dr. Dolf Timmerman



Graduate School of Engineering, Osaka University

*“Coherent emission from quantum emitters in a nano-cavity”*

Coherent emission from a collection of quantum emitters can be obtained under specific conditions. Based on the fundamental properties of rare-earth doped semiconductors and nano-cavities I introduce the requirements, and show approaches for this system to realize coherent emission.

15:15-16:00 Prof. Hiromi Yamashita



Graduate School of Engineering, Osaka University

*“Design of Metal-Organic Frameworks (MOF) Photocatalyst for Hydrogen Peroxide Production”*

Application of MOF materials for photocatalytic hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) production via oxygen reduction has been demonstrated with the linker functionalization, the addition of missing-linker defects, and the utilization of a noble two-phase reaction system: *Chem*, 8, 2924-2934 (2022).

16:00-16:45 Prof. Peter Schall



Van der Waals - Zeeman Institute, University of Amsterdam

*“Optoelectronic properties of low-dimensional semiconductors”*

Breakthroughs in synthesis and fabrication techniques have provided a wealth of low-dimensional semiconducting materials that offer physical insight into new phenomena as well as rich functionality for applications. I will focus on nanocrystals and 2D materials and show how these materials and their meta- and heterostructures offer, besides interesting photophysics, new functionality and design space for applications in energy conversion.

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